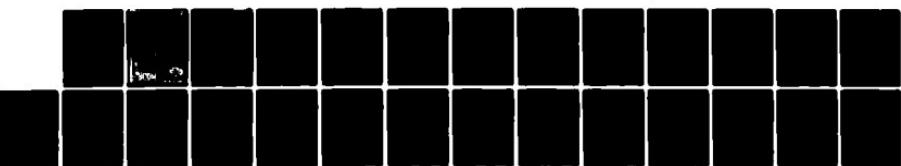
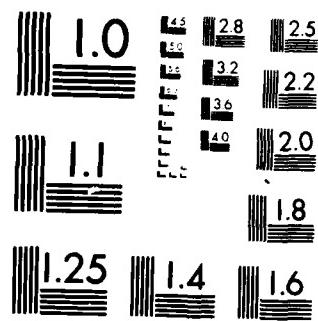


AD-A124 117 1283OC LANCE MISSILE NUMBER 2540 ROUND NUMBER 381-DSL 6 1/1  
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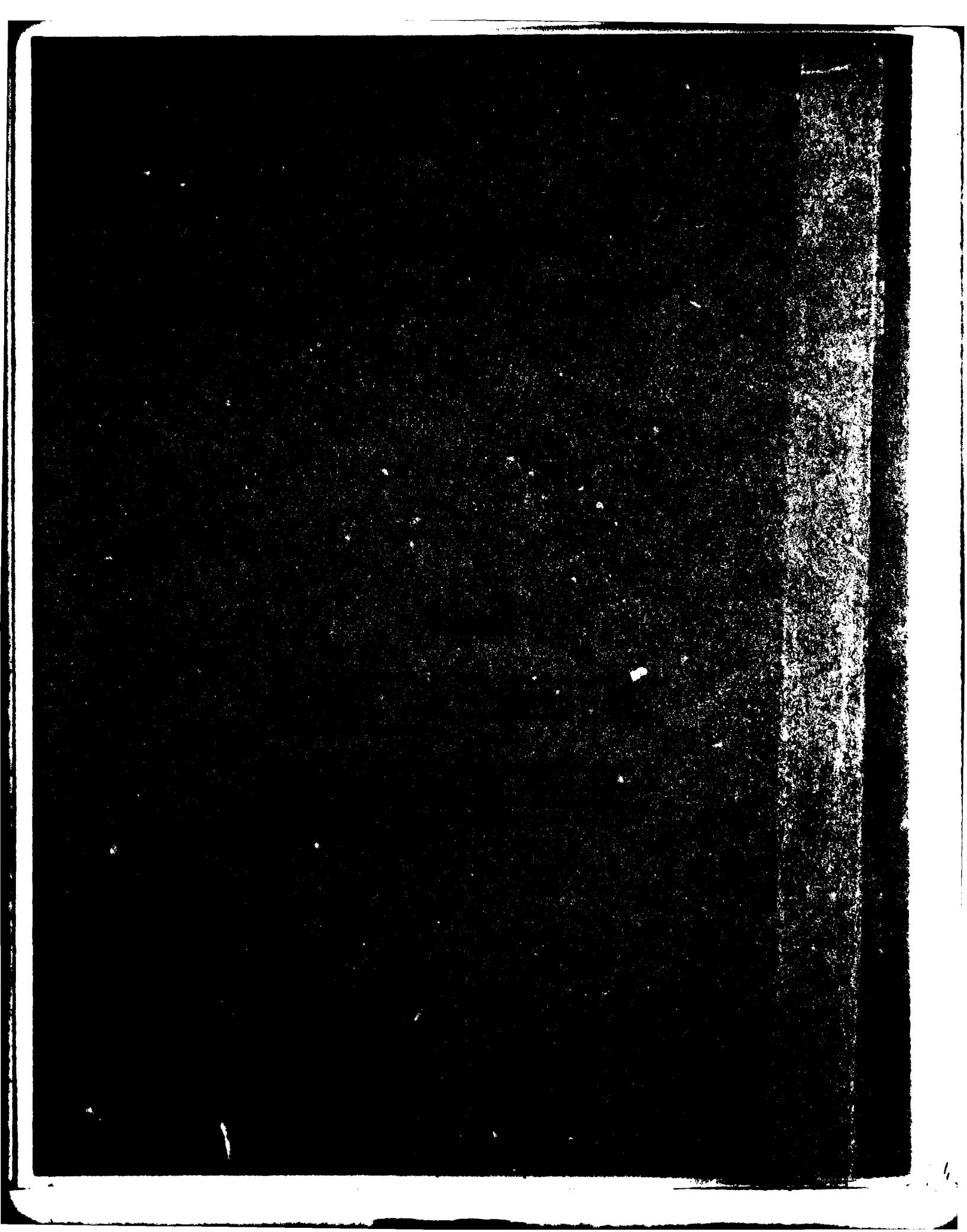


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NATIONAL BUREAU OF STANDARDS 1963-A

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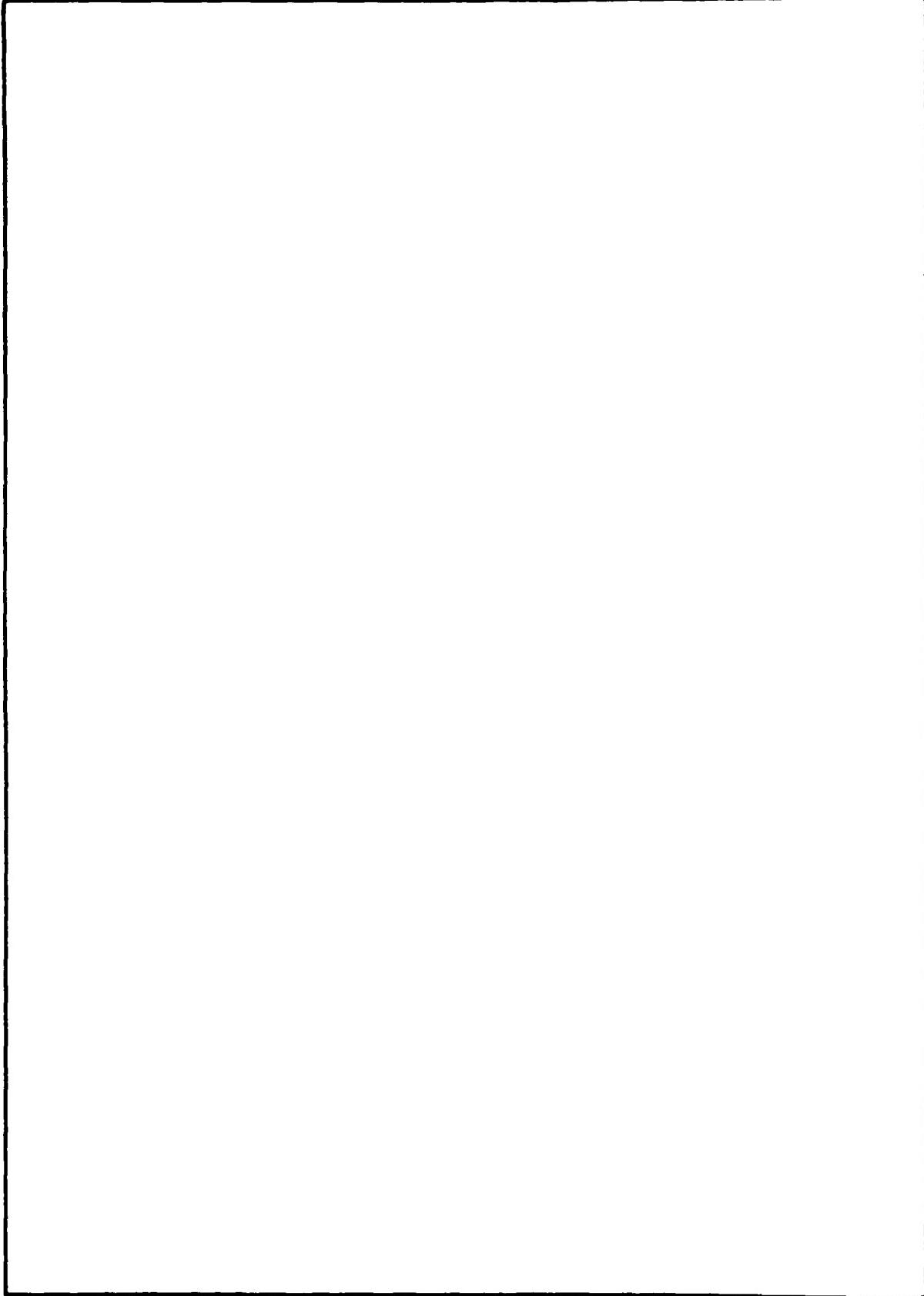


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REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER DR 1280	2. GOVT ACCESSION NO. <i>AD-4124 10</i>	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) 12830C LANCE Missile Number 2540 Round Number 381-DSL	5. TYPE OF REPORT & PERIOD COVERED	
7. AUTHOR(s)  White Sands Meteorological Team	6. PERFORMING ORG. REPORT NUMBER  DA Task 1F665702D127-02	
9. PERFORMING ORGANIZATION NAME AND ADDRESS	10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS	
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19. KEY WORDS (Continue on reverse side if necessary and identify by block number)		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number)	Meteorological data gathered for the launching of the 12830C LANCE, Missile Number 2540, Round Number 381-DSL are presented in tabular form.	

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## INTRODUCTION

12830C LANCE, Missile Number 2540, Round Number 381-DSL, was launched from LC-33, White Sands Missile Range (WSMR), New Mexico, at 1632:35 MST, 6 Dec 82. The scheduled launch time was 1615 MST.

## DISCUSSION

→ Meteorological data were recorded and reduced by the White Sands Meteorological Team, Atmospheric Sciences Laboratory (ASL), White Sands Missile Range, New Mexico. The data were obtained by the following methods:

### 1. Observations

CUM

#### a. Surface

(1) Standard surface observations to include pressure, temperature ( $^{\circ}\text{C}$ ), relative humidity, dew point ( $^{\circ}\text{C}$ ), density ( $\text{gm}/\text{m}^3$ ), wind direction and speed, and cloud cover were made at the LC-33 Met Site at T-0 minutes.

(2) Anemometer data were provided from existing pole-mounted and tower-mounted anemometers at LC-33. Monitor of wind speed and direction from one anemometer was also provided in the launch control room.

#### b. Upper Air

(1) Low level wind data were obtained from a NIKE-HERCULES Radar Tracked Pilot-Balloon observation at:

### SITE AND ALTITUDE

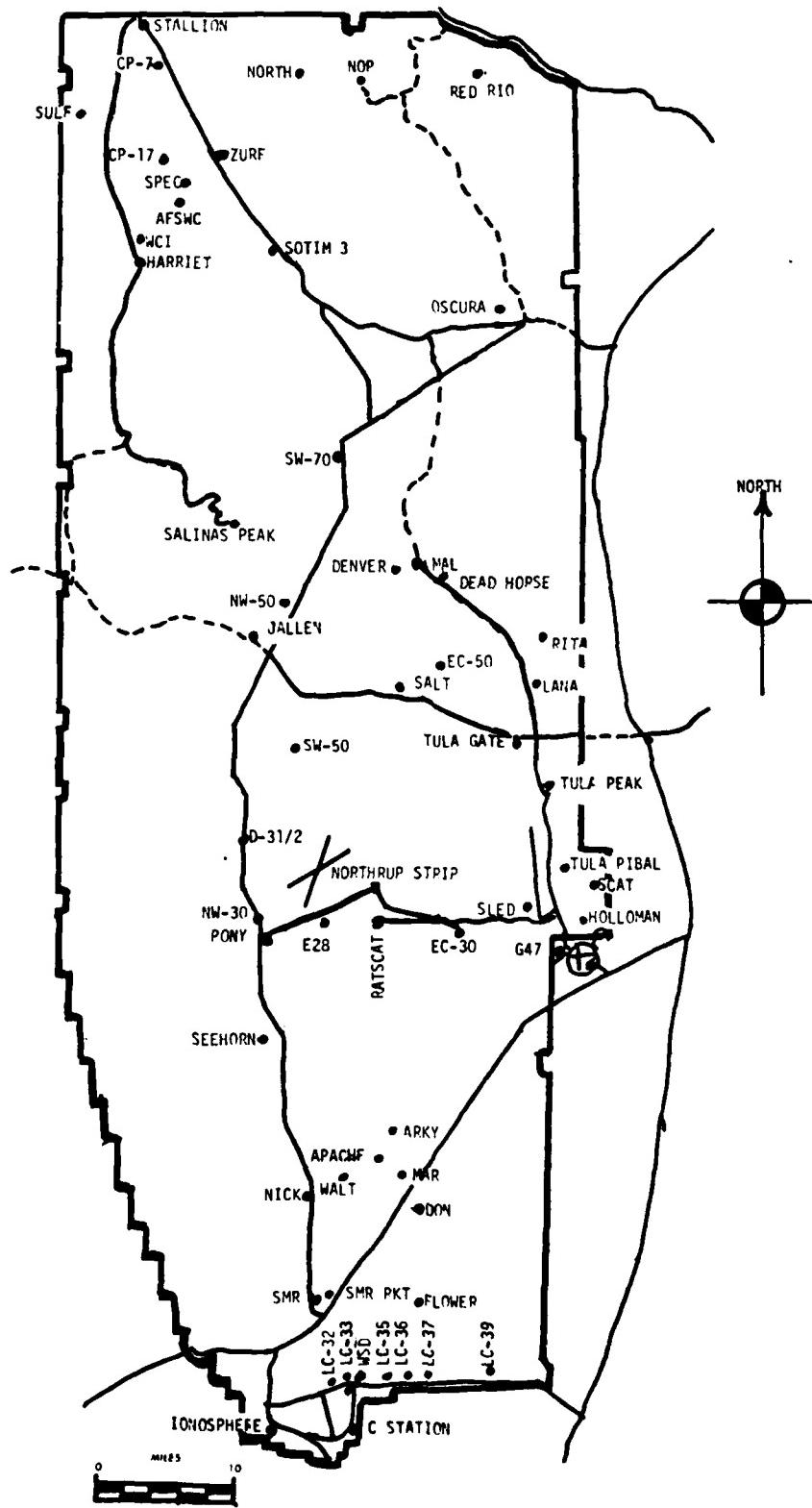
WSD 2760 Meters

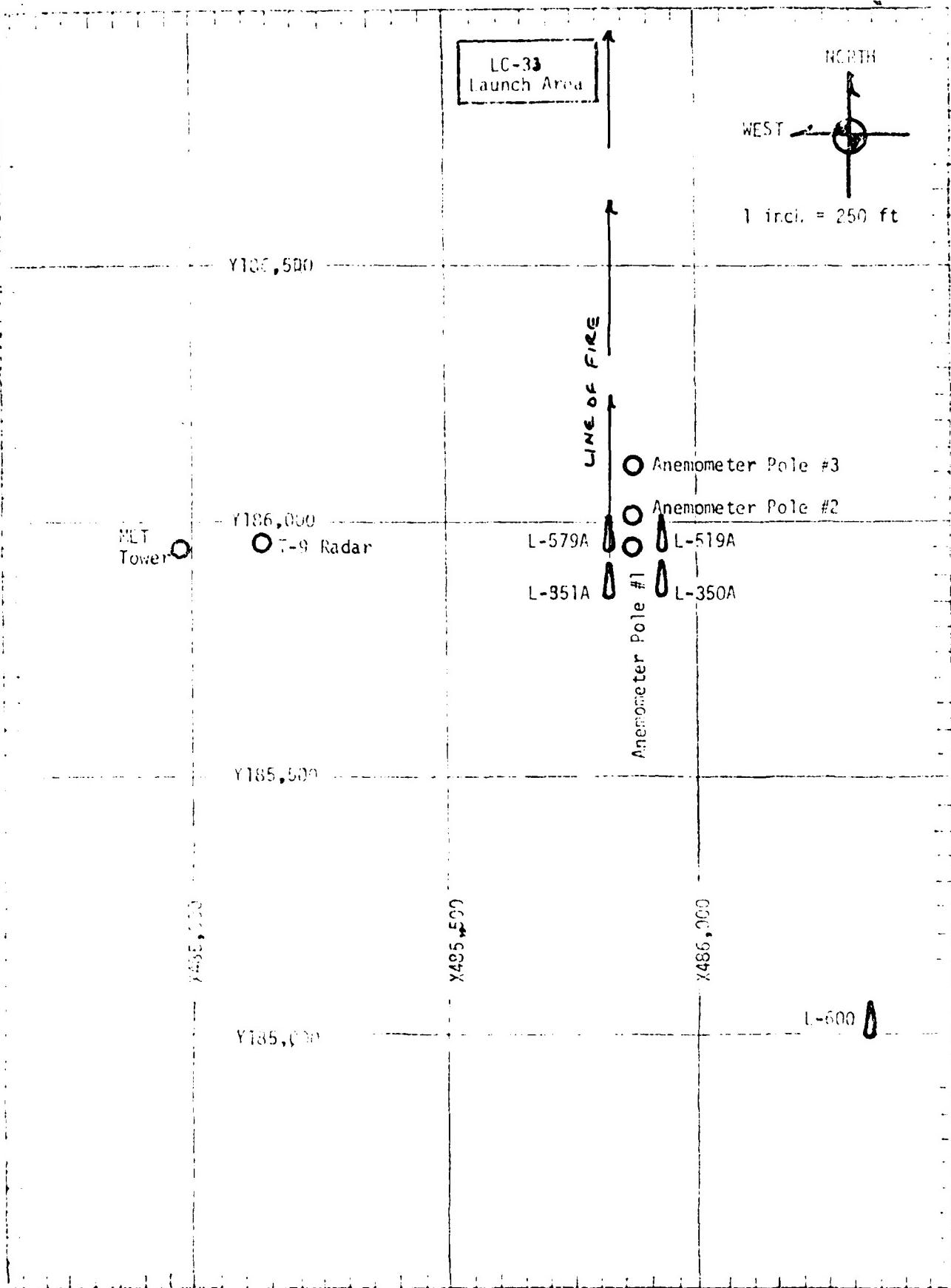
(2) Air structure data (rawinsonde) were collected at the following Met Sites.

### SITE AND TIME

LC-33 (Launch Area)	1605 MST
JALLEN (Mid-Course)	1445 MST
STALLION (Impact Area)	1645 MST

## WSMR METEOROLOGICAL SITES





## PROJECT SURFACE OBSERVATION

TABLE 1

DATE 6 DAY	MONTH Dec 82	YEAR	TIME M S L	PRESSURE mb	TEMPERATURE OF °C	DEW POINT OF °C	RELATIVE HUMIDITY %	DENSITY g/m <sup>3</sup>	MIND kts	CHARACTER	VISIBIL- ITY kts
1633	880.3				11.1	-1.0	43		180	03	50

OBSTRUCTIONS TO VISIBILITY	CLOUDS						REMARKS			
	1st LAYER AMT	TYPE	HGT	2nd LAYER AMT	TYPE	HGT		3rd LAYER AMT	TYPE	HGT
0	AS	15,000	1	CL	25,000					

## PSYCHROMETRIC COMPUTATION

TIME:	1633		
DRY BULB TEMP.	11.1		
WET BULB TEMP.	5.3		
WET BULB DEPR.	5.8		
DEW POINT	-1.0		
RELATIVE HUMID.	43		

TABLE 2 LC-33 FIXED POLE ANEMOMETER MEASURED WINDS

POLE #1			POLE #2			POLE #3		
X485,874.29			X485,874.29			X485,877.29		
T-TIME SEC	DIR DEG	SPEED KNOTS	T-TIME SEC	DIR DEG	SPEED KNOTS	T-TIME SEC	DIR DEG	SPEED KNOTS
T -30	165	04	T -30	172	03	T -30	169	05
T -20	165	04	T -20	172	03	T -20	169	05
T -10	165	04	T -10	172	03	T -10	168	05
T 0.0	165	04	T 0.0	171	03	T 0.0	168	04
T +10	165	04	T +10	158	02	T +10	168	04

TABLE 3 LC-33 METEOROLOGICAL TOWER ANEMOMETER MEASURED WINDS (202 FT TOWER)

LEVEL #1, 12 FEET X484,982.64, Y185,057.73, H3983.00 (base)			LEVEL #2, 62 FEET X484,982.64, Y185,057.73, H3983.00 (base)		
T-TIME SEC	DIR DEG	SPEED KNOTS	T-TIME SEC	DIR DEG	SPEED KNOTS
T -30	189	03	T -30	170	04
T -20	188	03	T -20	170	04
T -10	186	03	T -10	170	04
T 0.0	182	03	T 0.0	170	04
T +10	186	03	T +10	170	04

LEVEL #3, 102 FEET X484,982.64, Y185,057.73, H3983.00 (base)			LEVEL #4, 202 FEET X484,982.64, Y185,057.73, H3983.00 (base)		
T-TIME SEC	DIR DEG	SPEED KNOTS	T-TIME SEC	DIR DEG	SPEED KNOTS
T -30	182	05	T -30	171	04
T -20	182	05	T -20	171	04
T -10	182	05	T -10	172	04
T 0.0	182	05	T 0.0	172	04
T +10	182	05	T +10	172	04

## TEN METER ANEMOMETER WIND DATA

TABLE 4

FROM WSD DATE 6 Dec 82 TIME 1633  
 ELEVATION (W.M) 488,852.29 Y= 184,982.45 H= 3993.75

ELEVATIONS ARE IN FEET AGL

	DEPRESSION	ANGLE	DEPRESSION	ANGLE	HEIGHT	DIRECTION	SPEED
	FEET	MINUTES	FEET	MINUTES	AGL	DEGREES	KNOTS
SFC	170	02	1800	220	15		
60	172	02	1860	213	17		
120	175	05	1920	226	13		
180	186	03	1980	226	13		
240	172	03	2040	237	12		
300	176	05	2100	229	12		
360	177	04	2160	221	14		
420	156	04	2220	222	16		
480	164	03	2280	218	15		
540	169	02	2340	213	16		
600	174	04	2400	216	16		
660	190	04	2460	214	15		
720	220	03	2520	216	15		
730	213	02	2580	219	15		
840	213	02	2640	219	14		
900	217	06	2700	221	14		
960	210	11	2760	222	14		
1020	237	15					
1080	213	13					
1140	206	15					
1200	209	15					
1260	208	15					
1320	211	17					
1380	210	17					
1440	207	17					
1500	203	16					
1560	208	16					
1620	212	15					
1680	214	16					
1740	213	16					

TABLE 5

COMPUTER MET MESSAGE DATA  
6 Dec 82

LC-37	1605 MST	JALLEN	1445 MST	STALLION	1645 MST
METCM1325064		METCM1332065		METCM1338067	
062310124878		062180124878		062380151350	
00000000	28600878	00178003	23780878	00276002	23170850
01397002	28680868	01269003	23510868	01294006	23290839
02330004	28450842	02285006	23270842	02319008	23140814
03366005	28170802	03373005	23040802	03378016	23980776
04382014	28190755	04407015	23970755	04417016	23990730
05384014	27970711	05382013	23980710	05419019	23740687
06391014	27710669	06406018	23660668	06424019	23380645
07392016	27230628	07418021	23290623	07432020	23980606
08440016	26810590	08445017	236880590	08434020	23570569
09452021	26480553	09469022	236480553	09435024	23160533
10437024	26070519	10446024	236060518	10431026	23840499
11442027	25690486	11447028	23670485	11443023	23460467
12448030	25130439	12459025	235060439	12462023	23870422
13453032	24270382	13464028	23290382	13489022	23010367
14463027	23400332	14464028	23510331		
15489025	22630286	15482028	23590286		
16502028	22260246	16501029	23220246		
17523031	22230211	17517036	23210211		
18486029	22220181	18512030	23370181		
19475030	21700155	19477026	23880155		
20520023	21330132	20512028	23460133		
21522014	20770113	21529017	23940113		
22615009	20440096	22582015	23600096		
		23083000	23640081		
		24099006	23980069		
		25233002	23170059		
		26006006	23030050		

STATION ALTITUDE 4151.4' FELT MSL  
A UFL. R<sub>2</sub>  
ASCENSION NO. 119

SIGNIFICANT LFVFL DATA

3400180110

LC-37

1605 HRS MST

119

GEODETIC COORDINATES  
32°40'17.5" LAT 0°5'  
106.51232" LONG 0°46'

TABLE 6

PRESSURE GEOMETRIC MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE AIR DEGREES CENTIGRADE	REL.HUM. PERCENT
877.9	4051.4	12.0	-2.2
875.7	4120.6	13.8	-2.6
850.0	4941.3	11.6	-3.3
812.7	6164.4	7.6	-5.1
792.3	6852.4	7.8	-11.5
783.1	7169.0	8.8	-12.3
768.6	7676.5	8.7	-11.8
752.9	8236.9	6.7	-11.2
724.8	9266.2	6.7	-12.9
700.0	10203.3	5.8	-14.2
668.5	11436.6	3.9	-15.8
603.2	14139.6	-4.3	-22.3
564.9	15829.2	-7.3	-25.3
500.0	18911.1	-14.8	-11.2
435.9	22278.4	-22.1	-37.5
400.0	24334.4	-27.8	-40.3
334.5	28469.2	-38.8	-49.2
300.0	30899.1	-44.5	32.0
267.1	33428.7	-50.2	25.0
250.0	34851.3	-50.3	23.0
234.9	36188.9	-50.9	29.0
219.7	37622.8	-51.1	
209.7	38619.2	-51.9	
204.9	39114.2	-51.4	
200.0	39635.0	-49.0	
176.3	42350.0	-51.3	
162.6	44066.5	-54.9	
150.0	45760.2	-57.0	
141.3	46472.9	-58.8	
129.6	48787.4	-59.8	
112.2	51715.9	-66.0	
100.0	54005.7	-68.6	
40.4	55996.2	-69.2	
66.6	56845.7	-68.8	

STATION ALTITUDE 4000.0 FEET MSL  
E DEC. 8<sup>o</sup>  
ASCENSION NO. 1117  
1605 HRS MST

UPPER AIR DATA  
5400100119  
LC-37  
TABLE 7

GEOPHYSIC PRESSURE	TEMPERATURE	RFL.HUM.	DENSITY	SPEED OF	WIND DATA	INDEX
ALTITUDE MSL FEET	AIR DEGREES CENTIGRADE	DRYPOINT PERCENT	GM/CUBIC METER	SOUND KNOTS	DIRECTION DEGREES(TN)	OF REFRACTION
4051.4	677.9	12.0	-2.2	1070.1	658.6	0.0
4000.0	681.7	12.8	-2.9	1050.0	659.5	1.0
3600.0	648.2	11.4	-3.4	1036.0	657.9	1.1
3200.6	634.6	9.8	-4.1	1023.3	656.0	2.2
2800.0	617.6	6.1	-6.9	1010.6	654.0	1.000253
2500.0	602.7	7.7	-7.8	994.1	653.4	1.000249
2100.0	788.0	6.3	-11.8	974.3	653.9	1.000246
1800.0	775.6	8.7	-12.0	954.9	654.5	1.000246
1500.0	749.5	8.7	-11.5	937.6	654.5	1.000246
1250.0	745.6	8.4	-11.7	922.1	653.9	1.000246
1000.0	732.0	7.4	-12.5	908.4	652.7	1.000246
750.0	718.5	6.5	-13.3	894.1	651.8	1.000246
500.0	705.3	6.0	-14.0	879.2	651.3	1.000246
1500.0	692.3	5.3	-14.6	865.1	650.5	1.000246
1150.0	679.5	4.6	-15.5	851.4	649.6	1.000246
1150.0	666.9	5.7	-16.4	838.3	648.5	1.000246
1000.0	654.3	2.4	-17.2	827.1	646.7	1.000246
1250.0	642.6	7.7	-18.4	816.1	644.9	1.000246
1350.0	629.4	1.6	-19.5	805.2	643.1	1.000246
1350.0	616.1	-2.4	-20.7	794.5	641.3	1.000246
1400.0	606.4	-3.9	-21.9	784.0	639.5	1.000246
1450.0	594.8	-4.9	-22.9	772.1	638.2	1.000246
1500.0	583.4	-5.8	-23.6	759.8	637.1	1.000246
1550.0	572.2	-6.7	-24.7	747.7	636.1	1.000246
1600.0	561.1	-7.7	-25.6	736.0	634.9	1.000246
1650.0	550.1	-8.9	-26.6	724.9	633.4	1.000246
1700.0	539.3	-10.1	-27.6	714.0	631.9	1.000246
1750.0	528.7	-11.4	-28.5	703.3	630.5	1.000246
1800.0	516.4	-12.6	-29.5	692.8	629.0	1.000246
1850.0	508.1	-13.3	-30.4	682.4	627.5	1.000246
1900.0	498.2	-15.0	-31.4	672.1	626.0	1.000246
2150.0	478.1	-16.1	-32.3	651.1	624.7	1.000246
2250.0	476.5	-17.6	-33.3	650.7	623.4	1.000246
2450.0	478.7	-16.2	-34.2	640.3	622.1	1.000246
2100.0	455.2	-19.3	-35.1	630.1	620.7	1.000246
2150.0	449.9	-20.4	-36.1	620.0	619.4	1.000246
2250.0	440.9	-21.5	-37.0	610.2	618.1	1.000246
2450.0	471.9	-22.7	-37.8	600.6	616.6	1.000246
2500.0	422.9	-24.1	-38.4	591.5	614.9	1.000246
2550.0	414.2	-25.5	-39.1	582.5	613.1	1.000246

STATION ALTITUDE 4051.7 FEET MSL  
E LFC. 21605 HRS MST  
ASCENSION NO. 119

UNPAK AIR DATA  
34001R0110  
LL-37  
TABLE 7 Cont'd

GEOPHYSIC ALTITUDE FTS FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES (TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
24000.0	405.6	-36.2	39.8	26.0	573.7	611.4	253.3	31.6
24500.0	367.1	-25.6	45.6	29.1	564.8	609.7	251.4	32.2
25000.0	358.6	-29.6	41.7	29.5	555.8	608.1	251.8	32.2
25500.0	360.3	-20.9	42.7	29.8	546.9	606.4	254.2	32.2
26000.0	372.2	-12.2	43.8	30.2	558.1	604.7	255.5	31.6
26500.0	364.2	-15.6	44.9	30.6	529.5	603.0	257.0	30.6
27000.0	356.4	-14.9	46.0	30.9	521.1	601.4	258.4	29.8
27500.0	348.2	-7.6	47.1	31.3	512.8	599.7	259.1	28.9
28000.0	341.4	-7.6	48.2	31.7	504.7	598.0	260.0	28.0
28500.0	334.0	-16.9	49.4	31.6**	496.7	596.3	261.8	27.4
29000.0	326.6	-40.0	52.4	25.0**	488.1	594.8	264.0	27.0
29500.0	319.4	-41.2	55.9	16.4**	479.7	593.3	266.2	26.5
30000.0	312.2	-42.4	60.3	11.8**	471.5	591.6	268.7	26.2
30500.0	305.4	-45.6	67.2	5.3**	463.4	590.3	270.2	25.9
31000.0	298.6	-44.7	67.0	44.7	455.4	588.8	272.1	25.3
31500.0	291.8	-45.9	67.0	44.7	447.3	587.3	274.8	24.5
32000.0	285.2	-47.0	67.0	439.3	585.9	277.4	23.7	23.7
32500.0	278.7	-48.1	67.0	431.5	584.4	278.1	23.1	23.1
33000.0	272.4	-49.2	67.0	423.8	583.0	278.6	23.0	23.0
33500.0	266.2	-50.2	67.0	416.0	581.7	278.9	23.2	23.2
34000.0	240.1	-50.2	67.0	406.5	581.6	278.9	24.4	24.4
34500.0	454.1	-50.3	67.0	397.2	581.6	276.9	25.5	25.5
35000.0	248.5	-50.4	67.0	388.2	581.5	281.0	27.2	1.000086
35500.0	242.6	-50.6	67.0	379.7	581.2	283.7	29.2	1.000085
36000.0	237.0	-50.8	67.0	371.3	580.9	286.1	31.3	1.000083
36500.0	231.5	-50.9	67.0	363.0	580.7	288.1	32.2	1.000081
37000.0	226.2	-51.0	67.0	354.7	580.6	290.4	32.9	1.000080
37500.0	221.0	-51.1	67.0	346.6	580.5	292.5	33.4	1.000077
38000.0	215.9	-51.4	67.0	339.1	580.1	294.7	33.4	1.000076
38500.0	210.9	-51.8	67.0	331.9	579.6	296.9	33.3	1.000074
39000.0	206.0	-51.5	67.0	323.8	580.0	298.1	32.7	1.000072
39500.0	191.3	-49.6	67.0	313.7	582.5	294.8	31.8	1.000070
40000.0	176.6	-49.3	67.0	306.0	582.9	292.6	31.8	1.000068
40500.0	192.1	-47.7	67.0	299.6	582.3	289.7	30.1	1.000067
41000.0	157.7	-50.2	67.0	293.7	581.8	285.6	29.2	1.000065
41500.0	183.4	-50.6	67.0	287.1	581.2	279.6	27.8	1.000064
42000.0	179.1	-51.0	67.0	281.0	580.7	273.7	26.7	1.000063
42500.0	175.1	-51.6	67.0	275.1	579.9	266.8	26.8	1.000061
43000.0	171.0	-52.7	67.0	270.2	578.5	260.8	27.7	1.000059
43500.0	167.0	-55.7	67.0	265.1	577.1	259.0	29.6	1.000058

\*\* AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 4051.7 FEET "SL  
SEC. A 1605 HRS MST  
ASCENSION NO. 115

WRF AIR DATA  
34001RU119  
LC-37  
TABLE 7 Cont'd

GEOMETRIC ALTITUDE	PRESSURE	TEMPERATURE	REL.HUM.	SPEED OF	WIND DATA	INDEX
FEET	IN MILLIBARS	AIR DEGREES C "TIGRADE	PERCENT	GR/CUBIC METER	DIRECTION SPED	OF
FEET	MMR	DEGREES C	%	KNOTS	DGREES (TM)	REFRACTION
44000.0	163.1	-54.5	260.7	575.7	261.8	29.7
44500.0	154.3	-55.0	254.9	574.8	264.5	29.9
45000.0	155.5	-56.1	249.6	574.0	267.0	29.9
45500.0	151.2	-56.7	244.4	573.2	269.7	30.0
46000.0	148.5	-57.4	239.4	572.5	271.4	30.8
46500.0	144.5	-58.1	234.5	571.3	277.3	31.7
47000.0	141.3	-58.8	229.7	570.4	282.0	30.3
47500.0	137.9	-59.4	224.5	570.0	287.2	28.9
48000.0	134.0	-59.4	219.4	569.6	290.9	25.8
48500.0	131.4	-59.6	214.4	569.3	295.0	22.2
49000.0	128.5	-60.3	209.9	568.4	297.7	19.1
49500.0	125.1	-61.3	205.8	567.0	299.2	16.4
50000.0	122.1	-62.4	201.8	565.6	297.9	14.4
50500.0	119.1	-63.4	197.9	564.2	292.7	13.4
51000.0	116.2	-64.5	194.0	562.8	288.0	13.0
51500.0	113.4	-65.5	191.3	561.3	286.8	13.8
52000.0	110.6	-66.5	186.3	560.3	286.1	14.7
52500.0	107.9	-66.9	182.2	559.5	297.1	15.5
53000.0	105.2	-67.5	178.1	558.7	306.7	16.8
53500.0	102.6	-68.0	174.2	558.0	317.5	15.5
54000.0	100.0	-68.6	170.4	557.2	330.9	14.4
54500.0	97.5	-68.7	166.2	557.0	344.4	11.6
55000.0	95.1	-68.9	162.2	556.8	356.6	8.1
55500.0	92.7	-69.0	158.7	556.6	360.3	1.000033
56000.0	90.4	-69.2	154.4	556.4	360.4	1.000034
56500.0	86.1	-69.4	150.4	556.7	360.3	1.000035

STATION ALTITUDE 4651.00 FEET MSL  
6 DEG. 02' 1445 HRS MST  
ASCENSUS 140. 130

SIGNIFICANT LEVEL DATA  
3400050190  
JALLEN  
TABLE 8

EQUATORIAL COORDINATES  
53.16712 LAT LG  
106.49511 LONG DEG

PRESSURE MILLIBARS MSL FEET	BAROMETRIC ALTITUDE DEGREES MSL FEET	TEMPERATURE AIR DEWPNT DEGREES CENTIGRADE	REL.HUM. PERCENT
878.3	4051.0	14.0	39.0
874.2	4180.0	11.6	32.0
850.0	4946.9	9.1	36.0
826.9	5693.9	7.2	41.0
786.7	7038.5	6.4	39.0
757.7	8048.5	5.5	25.0
750.6	8301.6	6.5	19.0
724.5	9256.5	7.5	16.0
700.0	10183.4	5.7	17.0
653.5	12017.6	2.1	20.4
565.1	15805.7	-7.2	15.0
500.0	18896.0	-14.9	18.0
400.0	24306.9	-28.1	25.0
391.6	24807.2	-29.0	24.0
336.2	28328.7	-38.3	25.0
300.0	30874.3	-44.5	
274.6	32801.9	-49.9	
250.0	34809.8	-52.8	
246.4	35119.8	-50.4	
243.6	35364.9	-51.2	
232.4	36377.3	-49.2	
221.2	37439.5	-51.3	
200.0	39595.3	-51.5	
196.5	39974.9	-49.2	
180.0	41875.3	-48.6	
161.9	44147.1	-53.2	
155.8	44961.8	-53.7	
150.0	45761.8	-55.8	
124.1	49701.4	-60.1	
108.7	52394.1	-65.5	
100.0	54062.3	-66.9	
84.7	57363.9	-68.0	
75.3	59723.8	-63.3	
70.0	61204.8	-63.3	
63.4	63207.6	-64.0	
54.7	66211.3	-60.7	
50.0	68043.9	-64.1	
38.0	73678.2	-58.0	
30.0	78615.0	-57.0	

STATION ALTITUDE 4051.00 FEET  
6 DEG. 12' 1445 HRS MST  
ASCENSUS 10. 1.0

UPPER AIR DATA  
3400030190  
JALLEN  
TABLE 9

GEOPOTENTIAL ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE DEGREES CENTIGRADE	REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DIA DEGREES (TN)	WIND DIA KNOTS	INDEX OF REFRACTION
4051.0	878.3	14.0	3	39.0	1062.7	661.0	180.0	2.9
4500.0	864.0	10.6	-4.4	34.5	1058.9	656.8	176.7	3.6
5000.0	848.3	9.0	-4.5	38.2	1045.5	655.0	174.2	4.4
5500.0	832.0	7.7	-5.0	40.2	1031.1	653.5	172.5	5.2
6000.0	817.6	7.0	-5.5	40.5	1014.7	652.7	164.4	5.3
6500.0	802.6	6.7	-6.0	39.8	997.1	652.3	207.6	5.7
7000.0	787.8	6.4	-6.5	39.1	979.9	652.0	222.7	8.6
7500.0	773.3	6.0	-9.5	31.7	963.7	651.4	229.2	12.3
8000.0	759.1	5.5	-13.5	23.8	947.8	650.7	227.9	14.1
8500.0	745.1	6.7	-15.7	18.4	926.7	652.0	225.7	14.5
9000.0	731.4	7.2	-16.3	16.8	908.0	652.6	220.3	12.3
9500.0	718.0	7.0	-16.8	16.3	892.0	652.4	217.4	12.5
10000.0	704.8	6.1	-17.3	16.8	878.6	651.2	217.4	13.7
10500.0	691.7	5.1	-17.9	17.0	865.4	650.1	210.4	15.6
11000.0	678.9	4.1	-18.7	17.0	852.4	648.9	224.7	17.0
11500.0	666.3	3.1	-19.5	17.0	839.6	647.6	226.9	18.2
12000.0	653.9	2.1	-20.3	17.0	827.0	646.6	232.5	19.8
12500.0	641.5	0.9	-21.5	16.7	814.9	645.2	233.9	20.6
13000.0	629.3	-0.3	-22.7	16.5	803.1	643.7	235.1	20.5
13500.0	617.4	-1.5	-23.9	16.2	791.4	642.2	237.5	18.4
14000.0	605.6	-2.8	-25.1	16.0	779.9	640.8	242.7	16.9
14500.0	594.1	-4.0	-26.2	15.7	768.6	639.3	249.7	18.3
15000.0	582.8	-5.2	-27.4	15.4	757.5	637.8	256.6	18.2
15500.0	571.0	-6.4	-28.6	15.2	746.6	636.3	260.6	20.2
16000.0	560.0	-7.7	-29.6	15.2	735.6	634.9	263.2	22.0
16500.0	549.8	-8.9	-30.3	15.7	724.6	633.4	261.6	22.7
17000.0	539.6	-10.2	-31.0	16.2	713.8	631.9	259.2	23.3
17500.0	528.4	-11.4	-31.7	16.6	703.1	630.4	251.6	23.9
18000.0	516.1	-12.7	-32.5	17.1	692.7	629.7	246.9	24.7
18500.0	507.9	-13.9	-33.2	17.6	682.3	627.5	246.7	25.4
19000.0	497.9	-15.2	-34.0	18.1	672.1	625.8	249.0	26.2
19500.0	487.7	-16.4	-34.6	18.8	661.5	624.3	253.2	27.3
20000.0	477.7	-17.6	-35.3	19.4	651.1	622.9	254.5	27.3
20500.0	468.0	-18.8	-36.0	20.1	640.9	621.4	255.0	26.9
21000.0	458.4	-20.0	-36.8	20.7	630.8	619.9	256.7	25.4
21500.0	449.1	-21.3	-37.5	21.4	620.9	618.4	258.2	25.0
22000.0	439.9	-22.5	-38.3	22.0	611.2	616.9	259.0	25.9
22500.0	430.1	-23.7	-39.0	22.7	601.7	615.4	259.4	26.8
23000.0	422.1	-24.9	-39.8	23.3	592.3	613.9	259.6	27.6
23500.0	413.5	-26.1	-40.6	24.0	583.1	612.3	260.7	27.7

STATION ALTITUDE 4051.00 FEET MSL  
6 DEG C. 02 HRS MSL  
ASERISSION NO. 190

UPPER AIR DATA  
3400030190  
JALLEN  
TABLE 9 Cont'd

GEODETIC COORDINATES,  
33.16712 LAT DEG  
106.49511 LONG DEG,

GEODETIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION (DEGREES) KNOTS	INDEX OF REFRACTION
24000.0	405.1	-27.4	-41.4	24.6	574.0	010.6	261.7
24500.0	396.7	-28.4	-42.4	24.6	564.7	009.5	261.5
25000.0	388.3	-29.5	-43.5	24.1	555.2	008.1	260.9
25500.0	380.0	-30.8	-44.0	24.2	546.3	006.5	259.8
26000.0	371.9	-32.2	-45.7	24.3	537.5	004.8	261.2
26500.0	363.9	-33.5	-46.8	24.3	528.9	003.2	263.0
27000.0	356.1	-34.8	-47.9	24.6	520.4	001.5	263.2
27500.0	348.5	-36.1	-49.0	24.8	512.1	599.8	262.8
28000.0	341.0	-37.4	-50.1	24.9	504.0	598.1	261.1
28500.0	333.6	-38.7	-51.8	23.3**	495.7	596.5	260.2
29000.0	326.3	-39.9	-54.8	10.4**	487.3	595.0	259.9
29500.0	319.0	-41.2	-58.3	13.5**	479.0	593.4	260.9
30000.0	312.0	-42.4	-62.8	8.6**	470.9	591.8	262.4
30500.0	305.1	-43.6	-69.8	3.7**	462.9	590.3	265.3
31000.0	298.3	-44.9			455.1	589.6	264.5
31500.0	291.5	-46.3			447.6	588.8	265.8
32000.0	284.9	-47.7			440.1	585.0	267.7
32500.0	278.4	-49.1			432.8	583.2	271.6
33000.0	272.1	-50.2			425.1	581.7	275.6
33500.0	265.8	-50.9			416.6	580.8	278.9
34000.0	259.6	-51.6			408.3	579.8	281.3
34500.0	253.6	-52.4			400.2	578.9	282.1
35000.0	247.8	-51.3			389.1	580.2	285.1
35500.0	242.1	-50.9			379.5	580.7	284.2
36000.0	235.5	-49.9			369.1	582.0	284.5
36500.0	231.1	-49.4			359.8	582.7	284.4
37000.0	225.8	-50.4			353.1	581.4	285.4
37500.0	220.6	-51.3			346.4	580.3	287.7
38000.0	215.5	-51.4			338.4	580.2	290.4
38500.0	210.5	-51.4			330.7	580.1	295.6
39000.0	205.6	-51.4			323.1	580.1	295.9
39500.0	200.9	-51.5			315.7	580.0	296.4
40000.0	196.3	-49.2			305.3	583.0	296.5
40500.0	191.3	-49.0			298.1	583.2	296.0
41000.0	187.4	-48.9			291.1	583.4	294.3
41500.0	183.1	-48.7			284.3	583.6	289.7
42000.0	179.0	-48.9			277.9	583.4	284.4
42500.0	174.8	-49.9			272.8	582.1	279.0
43000.0	170.6	-50.9			267.7	580.8	272.6
43500.0	166.9	-51.9			262.7	579.5	271.5

\*\* AT LAST ONE UNKNOWN RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 4051.00 FEET MSL.  
6 UTC. J2 1445 HRS MSL  
ASCENSIO. NO. 190

UPPER AIR UNIT  
3 Jun 03 0190  
JALLEN  
TABLE 9 Cont'd

GEODIAL COORDINATE,  
33.16712 LAT UEG  
106.49511 LONG UEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE DEGREES CENTIGRADE	AIR DENSITY GM/CUBIC METER	REL.HUM. PERCENT	WIND DATA DIRECTION DEGREES (TN)	SPEED KIOTS	INDEX OF REFRACTION
44000.0	163.0	-52.9	257.8	578.2	270.7	25.6	1.000057
44500.0	159.2	-53.4	252.4	577.5	269.2	25.7	1.000056
45000.0	155.5	-53.8	247.0	577.0	267.5	25.6	1.000055
45500.0	151.9	-55.1	242.7	575.5	267.4	26.4	1.000054
46000.0	148.3	-56.1	238.0	574.0	268.2	27.8	1.000053
46500.0	144.8	-56.6	232.9	573.5	271.1	29.1	1.000052
47000.0	141.3	-57.2	227.9	572.6	276.5	30.6	1.000051
47500.0	138.0	-57.7	223.1	571.8	281.3	31.6	1.000050
48000.0	134.7	-58.2	218.3	571.1	285.8	30.7	1.000049
48500.0	131.5	-58.8	213.7	570.4	290.4	30.0	1.000048
49000.0	128.4	-59.3	209.1	569.7	292.4	27.7	1.000047
49500.0	125.3	-59.9	204.7	568.9	294.7	25.4	1.000046
50000.0	122.3	-60.7	200.5	567.8	296.7	22.1	1.000045
50500.0	119.3	-61.7	196.6	566.5	299.3	18.6	1.000044
51000.0	116.4	-62.7	192.7	565.2	300.8	16.2	1.000043
51500.0	113.6	-63.7	188.9	563.8	301.0	14.8	1.000042
52000.0	110.8	-64.7	185.2	562.5	301.1	14.8	1.000041
52500.0	108.1	-65.6	181.5	561.3	300.9	17.3	1.000040
53000.0	105.5	-66.0	177.4	560.7	301.1	19.8	1.000039
53500.0	102.9	-66.4	173.3	560.1	304.4	20.6	1.000038
54000.0	100.3	-66.8	169.4	559.6	307.4	21.6	1.000037
54500.0	97.8	-67.0	165.3	559.3	316.2	18.1	1.000036
55000.0	95.4	-67.2	161.4	559.1	322.9	14.1	1.000035
55500.0	93.0	-67.4	157.5	558.8	335.3	11.2	1.000034
56000.0	90.7	-67.5	153.7	558.6	317.3	8.9	1.000033
56500.0	88.5	-67.7	150.0	558.4	41.9	8.5	1.000033
57000.0	86.3	-67.9	146.4	558.2	41.6	7.8	1.000033
57500.0	84.1	-67.7	142.7	558.4	41.3	7.1	1.000032
58000.0	82.1	-66.7	138.5	559.7	45.4	7.6	1.000031
58500.0	80.0	-65.7	134.4	561.1	48.9	8.1	1.000030
59000.0	78.1	-64.7	130.5	562.4	54.1	7.1	1.000029
59500.0	76.1	-63.7	126.7	563.8	62.0	5.8	1.000028
60000.0	74.3	-63.3	123.3	564.4	66.4	4.8	1.000027
60500.0	72.5	-63.3	120.3	564.4	67.0	4.0	1.000027
61000.0	71.7	-63.3	117.4	564.4	68.4	3.4	1.000026
61500.0	69.9	-63.5	114.6	564.1	72.1	3.1	1.000026
62000.0	67.3	-63.9	112.0	563.6	76.5	2.8	1.000025
62500.0	65.7	-64.3	109.5	563.0	75.5	2.8	1.000024
63000.0	64.1	-64.6	107.0	562.5	73.7	2.9	1.000024
63500.0	62.5	-64.4	104.3	562.9	79.1	3.0	1.000023

STATION ALTITUDE 4651.00 FT. "SL"  
6 DEC. 82 1445 HRS MST  
ASSEMBLATION NO. 1-7

UPPER AIR DATA  
3400050190  
JALLEN  
TABLE 9 Cont'd

DEUTERIUM ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE DEGREES CENTIGRADE	AIR DEWPOINT DEGREES CENTIGRADE	REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION (DEGREES TN)	SPEED KNOTS	INDEX OF REFRACTION
64000.0	61.0	-63.7			101.4	563.8	89.9	3.3	1.0000023
64500.0	59.5	-63.0			98.6	564.7	96.2	3.6	1.0000022
65000.0	58.1	-62.4			95.9	565.6	85.6	3.6	1.0000021
65500.0	56.6	-61.7			93.3	566.5	75.5	3.7	1.0000021
66000.0	55.3	-61.0			90.8	567.5	51.3	4.4	1.0000020
66500.0	53.9	-61.2			88.7	567.1	32.7	5.8	1.0000020
67000.0	52.6	-62.2			86.9	565.9	26.4	6.8	1.0000019
67500.0	51.4	-63.1			85.2	564.6	27.8	7.1	1.0000019
68000.0	50.1	-64.0			83.5	563.4	29.6	7.3	1.0000019
68500.0	48.9	-63.6			81.3	563.9	39.9	7.0	1.0000018
69000.0	47.7	-63.1			79.1	564.7	50.7	7.0	1.0000018
69500.0	46.6	-62.5			77.0	565.4	61.4	8.4	1.0000017
70000.0	45.5	-62.0			75.0	566.1	68.6	10.5	1.0000017
70500.0	44.4	-61.4			73.0	566.8	73.2	12.6	1.0000016
71000.0	43.3	-60.9			71.1	567.6	76.3	14.0	1.0000016
71500.0	42.3	-60.4			69.2	568.3	78.7	15.4	1.0000015
72000.0	41.2	-59.8			67.3	569.0	80.1	16.7	1.0000015
72500.0	40.2	-59.3			65.6	569.7	80.7	17.7	1.0000015
73000.0	39.3	-58.7			63.8	570.5	81.3	18.8	1.0000014
73500.0	38.3	-58.2			62.1	571.2	80.4	19.2	1.0000014
74000.0	37.4	-57.9			60.6	571.5	79.7	19.6	1.0000013
74500.0	36.5	-57.8			59.1	571.7	80.0	19.7	1.0000013
75000.0	35.7	-57.7			57.7	571.8	82.1	19.3	1.0000013
75500.0	34.8	-57.6			56.3	571.9	84.2	19.0	1.0000013
76000.0	34.0	-57.5			54.9	572.1	87.2	20.1	1.0000012
76500.0	33.2	-57.4			53.6	572.2	90.1	21.6	1.0000012
77000.0	32.4	-57.3			52.3	572.3	92.5	23.2	1.0000012
77500.0	31.6	-57.2			51.1	572.5	49.8	572.6	1.0000011
78000.0	30.9	-57.1			48.0	572.7			1.0000011
78500.0	30.2	-57.0							

SATURN ALTITUDE 4051.00 FEET A.S.L.  
6 UTC. 62 1445 HRS NST  
ASCENT RATE 1.00. 1.90

MANDATORY LEVELS  
34000-30190  
JALLEN  
TABLE 10

DEFINITE COORDINATES  
33.16712 LAT DEG  
106.49511 LONG DEG

PRESSURE (EQUIPOTENTIAL MILLIBARS	FLEET	AIR DEGREES CENTIGRADE	TEMPERATURE DEGREES CENTIGRADE	DEWPOINT PERCENT	RELATIVE HUMIDITY PERCENT	WIND DIRECTION DEGREES (TRUE)	WIND SPEED KNOTS
850.0	4944.	9.1	-4.4	38.	174.4	4.3	
800.0	6532.	6.7	-6.1	40.	211.0	5.8	
750.0	8316.	6.5	-15.4	19.	227.2	15.2	
700.0	10174.	5.7	-17.4	17.	216.6	14.5	
650.0	12148.	1.8	-20.7	17.	233.3	20.2	
600.0	14244.	-3.4	-25.6	16.	246.0	16.4	
550.0	16477.	-8.9	-30.3	16.	201.8	22.7	
500.0	18871.	-14.9	-33.8	18.	247.9	26.0	
450.0	21455.	-21.1	-37.4	21.	258.2	25.0	
400.0	24268.	-28.1	-41.9	25.	261.6	27.5	
350.0	27365.	-35.8	-48.8	25.	203.1	25.1	
300.0	30815.	-44.5			204.0	30.7	
250.0	34737.	-52.8			282.7	27.2	
200.0	39503.	-51.5			296.5	34.3	
175.0	42378.	-49.8			279.5	26.8	
150.0	45642.	-55.8			267.8	27.1	
125.0	49414.	-59.9			294.8	25.3	
100.0	53899.	-66.9			307.6	21.7	
80.0	58313.	-65.7			48.8	8.1	
70.0	60999.	-63.3			09.6	3.3	
60.0	64097.	-63.3			95.3	3.5	
50.0	67793.	-64.1			29.9	7.3	
40.0	72329.	-59.1			80.8	17.9	
30.0	78286.	-57.0					

\*\* AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 4940.0 FEET MSL  
6 DEC. P<sub>t</sub> 1065 HHS MST  
ASCENSION NO. 53

SIGNIFICANT LEVEL DATA  
3400040053  
STATION  
TABLE 11

GEODETIC COORDINATES  
33°8'19.20 LAT DEG  
106.66501 LON DEG

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MST FEET	TEMPERATURE AIR DEGREE DEGREES CHART GRADE	REL.HUM. PERCENT
849.5	4940.0	8.1	42.0
844.4	5103.7	9.8	44.0
787.9	6976.6	5.8	36.0
768.3	7656.0	6.2	36.0
758.6	7998.2	6.7	24.0
729.5	9052.6	6.8	21.0
700.0	10162.4	5.2	19.0
663.5	11590.3	2.2	18.0
591.6	14592.2	-2.0	17.0
551.9	17303.7	-5.0	16.0
500.0	18851.5	-12.0	16.0
400.0	24269.7	-14.7	16.0
349.9	27381.2	-27.6	22.0
336.3	28282.2	-36.2	29.0
310.2	3C091.1	-38.6	31.0
		-43.2	

STATION ALTITUDE 4940.0 FEET MSL  
G.LL. 62 1645 HHS MST  
ASCENSION NO. 53

UPPER AIR DATA  
3400040053  
STATION  
TABLE 12

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE DEGREES CENTIGRADE	REL.HUM. PERCENT	DENSITY METER	SPEED OF WIND KNOTS	WIND DATA DIRECTION DEGREES(CTN)	SPEED KNOTS	INDEX OF REFRACTION	GEODETIC COORDINATES	
									AIR DEPOINT	GM/LUBIC SOUND
4640.0	849.5	4.1	-4.0	1050.1	654.0	155.0	155.0	1.000256		
5000.0	847.6	8.7	-4.2	1045.5	654.7	163.5	163.5	1.000254		
5500.0	832.1	9.0	-5.3	1025.7	654.9	192.4	192.4	1.000246		
6000.0	816.9	7.9	-6.2	1010.8	653.7	190.0	190.0	1.000244		
6500.0	802.0	6.8	-7.2	996.2	652.4	203.2	203.2	1.000235		
7000.0	787.3	5.8	-8.2	15.0	981.6	651.2	207.0	1.000235		
7500.0	772.9	6.1	-11.6	26.8	962.8	651.4	213.6	1.000227		
8000.0	753.5	6.7	-14.0	21.0	943.3	652.0	219.4	1.000220		
8500.0	744.6	6.7	-14.6	20.6	925.8	652.8	226.1	1.000216		
9000.0	730.9	6.8	-15.1	19.1	908.7	652.1	251.9	1.000212		
9500.0	717.5	6.2	-16.0	18.6	894.0	651.4	236.2	1.000208		
10000.0	704.2	5.4	-16.9	16.1	879.9	650.5	237.0	1.000204		
10500.0	691.2	4.5	-17.9	17.8	866.6	649.4	236.0	1.000200		
11000.0	678.4	3.4	-19.0	17.4	853.7	648.2	235.5	1.000197		
11500.0	665.3	2.4	-20.1	17.1	841.1	646.9	235.1	1.000194		
12000.0	653.2	1.2	-21.2	16.9	828.8	645.5	237.2	1.000193		
12500.0	640.8	0.0	-22.3	16.7	816.8	644.1	239.2	1.000187		
13000.0	628.7	-1.2	-23.4	16.5	804.9	642.6	240.8	1.000184		
13500.0	616.8	-2.4	-24.5	16.4	793.2	641.2	242.4	1.000181		
14000.0	605.1	-3.6	-25.6	16.2	781.7	639.8	243.7	1.000178		
14500.0	593.7	-4.8	-26.7	16.0	770.3	638.3	244.9	1.000175		
15000.0	582.7	-6.1	-27.5	16.3	759.0	636.8	245.4	1.000172		
15500.0	570.9	-7.3	-28.4	16.7	747.9	635.3	245.9	1.000170		
16000.0	559.8	-8.6	-29.2	17.0	737.0	633.7	245.6	1.000167		
16500.0	548.0	-y.y	-30.0	17.4	726.2	632.2	245.7	1.000165		
17000.0	538.3	-11.2	-30.9	17.8	715.7	630.6	244.2	1.000162		
17500.0	527.7	-12.5	-31.7	18.0	704.7	629.2	243.4	1.000159		
18000.0	517.5	-13.2	-32.4	18.0	693.1	628.2	242.7	1.000157		
18500.0	507.1	-14.1	-33.2	16.0	681.7	627.1	242.0	1.000154		
19000.0	497.0	-15.1	-33.4	18.1	670.6	626.0	242.9	1.000151		
19500.0	486.8	-16.2	-34.7	18.5	660.0	624.5	244.6	1.000149		
20000.0	476.9	-17.4	-35.5	16.8	649.5	623.1	246.4	1.000146		
20500.0	467.2	-18.6	-36.3	19.2	639.3	621.6	248.2	1.000144		
21000.0	457.7	-19.8	-37.1	19.6	629.2	620.1	249.6	1.000142		
21500.0	448.3	-21.0	-38.0	20.0	619.3	618.7	250.8	1.000141		
22000.0	439.2	-22.2	-36.8	20.3	609.6	617.2	253.1	1.000137		
22500.0	430.2	-23.4	-39.6	20.7	600.0	615.7	256.5	1.000135		
23000.0	421.5	-24.6	-40.5	21.1	590.6	614.3	260.1	1.000133		
23500.0	412.9	-25.5	-41.5	21.4	581.3	612.8	261.8	1.000131		
24000.0	404.5	-27.0	-42.2	21.6	572.2	611.3	264.6	1.000128		

STATION ALTITUDE 4240.0 FEET MSL  
ELEV. 9°  
ASCENSION NO. 5

UPPFK AIR DATA  
3400040053  
STALLION  
TABLE 12 Cont'd

GEOMETRIC PRESSURE ALTITUDE MSL FEET	TEMPERATURE AIR DEGREES C	REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF WIND DATA DEGREES(TN)	INDEX OF REFRACTION
MILLIBARS	DEGREES CELSIUS	PERCENT	KNOTS	DEGREES(TN)	
24500.0	396.1	-28.2	22.5	563.1	265.4
25000.0	387.6	-29.6	23.6	554.4	266.5
25500.0	379.4	-31.0	24.5	545.7	268.7
26000.0	371.3	-32.4	25.4	537.2	274.6
26500.0	363.4	-33.8	26.2	528.8	279.0
27000.0	355.7	-35.1	27.0	520.6	281.1
27500.0	348.1	-36.5	27.9	512.4	281.0
28000.0	340.5	-37.6	28.8	504.1	281.5
28500.0	333.0	-39.0	29.6	495.8	288.5
29000.0	325.7	-40.4	30.4	487.5	279.0
29500.0	318.5	-41.7	31.0	479.4	261.0
30000.0	311.5	-43.0	31.6	471.4	251.1

\*\* AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 4740.00 FEET \*ST  
6 LFC. P.  
DISCUSSION NO. 53

MANATORY LEVELS  
340000053  
STALLION  
TABLE 13

GEODETIC COORDINATES  
33° 8' 19.40 LAT DEC  
106° 6' 65.01 LON DEC

PRESSURE MILLIBARS	REFL	DEGREES CENTIGRADE	TEMPERATURE		REL. HUM. PERCENT	WIND DATA	
			AIR	NEWPOINT CFTIGRADE		DIRECTION DEGREES (TN)	SPEED KNOTS
200.0	6564.	6.7	-7.3	-6.	263.5	11.6	
750.0	8299.	6.7	-14.4	20.	223.4	16.6	
700.0	*0154.	5.2	-17.1	18.	236.7	18.3	
650.0	12127.	.9	-21.5	17.	237.7	18.6	
600.0	14212.	-4.1	-26.1	16.	244.3	19.0	
500.0	16439.	-9.8	-29.9	17.	245.3	20.1	
400.0	18827.	-14.7	-33.7	18.	247.5	27.2	
450.0	21414.	-20.8	-37.8	20.	250.6	24.1	
400.0	24232.	-27.0	-42.7	22.	265.0	21.7	
350.0	27329.	-36.2	-47.7	29.	261.7	23.5	